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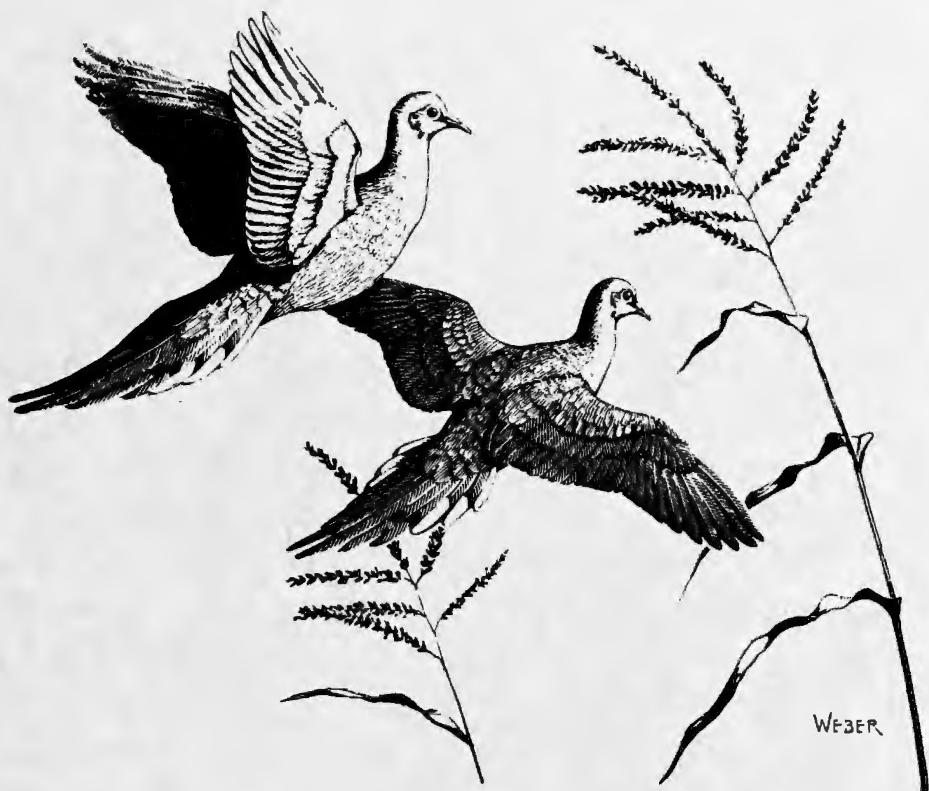


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MOURNING DOVE STATUS REPORT

1961



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Special Scientific Report--Wildlife No. 57



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United States Department of the Interior, Stewart L. Udall, Secretary
U. S. Fish and Wildlife Service, Clarence F. Pautzke, Commissioner

MOURNING DOVE STATUS REPORT - 1961

Compiled by

William H. Kiel, Jr.
Branch of Wildlife Research
Bureau of Sport Fisheries and Wildlife

U. S. Fish and Wildlife Service
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CONTENTS

Abstract	iv
Introduction	1
Procedure	3
The call-count method	3
Weighting factors	3
Long-term trends	4
Trends in the breeding-population index - 1961	4
Eastern management unit	4
Central management unit	4
Western management unit	7
Discussion of population-index trends	7
Literature cited	8

NOTE: This status report was compiled in the short time
between the close of the survey period and the date
of the Dove Regulations meeting. All data could not
be checked completely in that time.

ABSTRACT

An index to the 1961 mourning dove breeding population was obtained by a call-count survey conducted throughout the United States. Trends in the breeding-population index were calculated for three management units and for hunting and nonhunting States within management units. Trends in the breeding-population indexes from 1960 to 1961 were as follows: Eastern Unit down 4 percent, Central Unit down 10 percent, and no change in the Western Unit. Long-term trends in the breeding indexes, however, are upward in the Central and Eastern Units. The index for the Western Unit is essentially unchanged from 1953. For the United States as a whole, the 1961 breeding-population index is down 7 percent from 1960 and is 30 percent above the 1953 level.

INTRODUCTION

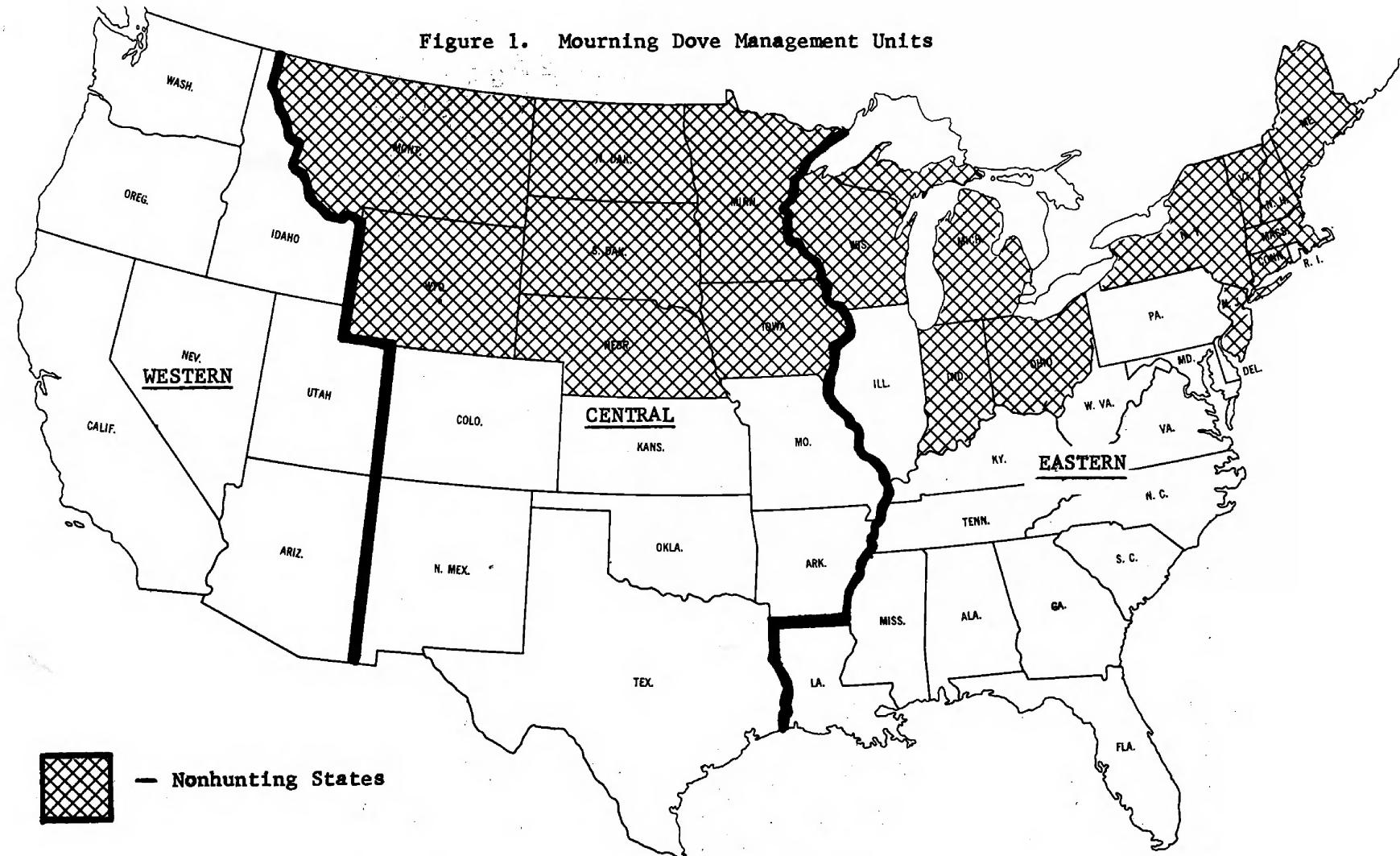
Prior to 1960, the annual status of the mourning dove population was reported in the Mourning Dove Newsletter. The Newsletter continues as a report on activities in mourning dove research and management on a national scale, but the annual report on status of the population, used chiefly for regulatory purposes, is published separately.

An annual survey of the breeding population of mourning doves by a system of call-count routes provides an index to the status of the population in the United States. Through the cooperation of State, Bureau, and independent observers, call-count routes were widely established by 1953. The hundreds of cooperators who participate in the call-count survey have contributed the data that form the basis for this report.

The call-count survey period is May 20 - June 10, a period during which dove calling activity is relatively stable, as indicated by intensive studies in eastern United States. Because hunting regulations must be published by a specified time prior to the hunting season, the Dove Regulations Committee meets late in June and population-status statistics must be summarized for consideration by the Committee. This status report serves that purpose. It also is distributed to all cooperators in the call-count survey and is available to interested organizations and individuals.

For several years prior to 1960, the Federal framework of mourning dove hunting regulations was established on the basis of eastern and western groups of States. Recent analysis of banding data indicates that there are three units of the mourning dove population in the United States that are largely independent of each other (Kiel, 1959). The criteria for independence are that a unit produces the doves that it harvests and does not produce doves that are harvested by other units. The Eastern, Central, and Western Management Units outlined in figure 1 best meet these criteria for management units on the basis of present information. Although additional banding data are needed to establish firmly the management-unit boundaries, the Federal framework of hunting regulations was established on the basis of three management units in 1960.

Figure 1. Mourning Dove Management Units



PROCEDURE

The Call-count Method

Call-count routes were established after field investigations in 1950-51 reported by Foote, Peters, McGowan, Kerley, Duvall, Robbins, and Wagner (1952). Doves heard calling and doves seen are recorded on a route 20 miles in length with listening stations one mile apart. Call counts begin one-half hour before sunrise and continue for two hours. A report on the call-count method and procedures for randomly selecting call-count routes has been published by Foote, Peters, and Finkner (1958). Five States - Arizona, California, Florida, Maryland, and Virginia - are reorganizing dove survey routes this year.

The call-count survey provides the only population index currently available. It has limitations and possible biases that require consideration and evaluation through further study. It is an index to the breeding population only and does not indicate production. This is an important limitation because a high percentage of the fall population is composed of young of the year. In calculating trends in the breeding-population index, doves heard calling has been a less variable index than doves seen. Additional research is needed to understand the relationship of doves heard calling to the actual population in various portions of the mourning dove breeding range. Several Cooperative Wildlife Research Units are beginning studies of the call-count census method this year.

Weighting Factors

To calculate trends in population indexes for units larger than one State, the adjusted figure of average doves heard calling per route for each State is multiplied by the estimated area of dove habitat in the State. Dove habitat area was estimated in the 1958 Mourning Dove Newsletter and is listed in table 1.

In calculating band-recovery rates for local, immature, and adult mourning doves on a management-unit basis, the breeding-population index for a State was divided by the number of doves banded in each age group to obtain a weighting factor for each banded bird (Kiel, 1959). Band-recovery rates on a State basis were calculated only for those States banding 100 or more doves in the age group of interest, and only those States were included in the calculation of weighted band-recovery rates for hunting and for nonhunting zones within a management unit (table 2). To obtain an average band-recovery rate for a management unit having a hunting and a nonhunting zone, recovery rates for the two zones were weighted by the ratio of the breeding indexes of the zones.

Long-term Trends

For the purpose of showing long-term trends in the breeding-population index of a State, a base year was selected, and annual percentage changes have been applied to the base figure (average doves heard calling per route) to give an adjusted figure which shows the true relation of indexes from year to year. The selection of a base figure is necessary because not all routes are censused each year. From a base year, average doves heard calling per route for each State has been adjusted annually according to the percentage change from the preceding year in counts on comparable routes. For example, the base year for Alabama is 1957 (table 3). In that year, the average doves heard calling per route was 21.1. In 1958, the percentage change from 1957 in counts on comparable routes was an increase of 12.8 percent, so the base figure of 21.1 was adjusted upward by 12.8 percent to a level of 23.8. In 1959, the percentage change from 1958 in counts on comparable routes was a decrease of 21.6 percent, so the 1958 adjusted figure or adjusted base was decreased by 21.6 percent, from 23.8 to 18.7. For the current year, 1961, the percentage change from the preceding year in counts on comparable routes was a decrease of 11.5 percent, which decreases the 1960 adjusted figure from 22.7 to its 1961 level of 20.1.

TRENDS IN THE BREEDING-POPULATION INDEX - 1961

Eastern Management Unit (fig. 1)

The breeding-population index for the Eastern Unit decreased 4 percent from the 1960 level (table 1). Figure 2 shows that the breeding index of the Eastern Unit has been increasing generally over the 7-year period prior to 1961. The slight decline in 1961 placed the population index 31 percent above the 1953 level.

In hunting States of the Eastern Unit, the breeding index decreased 6 percent from 1960 but remained 36 percent above the 1953 level (table 1 and fig. 3). In nonhunting States, the index increased 5 percent from 1960 to 1961 (table 1). The long-term trend of the breeding index in nonhunting States of the Eastern Unit is shown in figure 3 and indicates a relatively stable population in recent years. The 1961 index, however, was 18 percent above 1953.

Central Management Unit (fig. 1)

The breeding-population index for the Central Unit decreased 10 percent from the 1960 level (table 1). Figure 2 shows that for 6 years during an 8-year span the breeding index of the Central Unit increased, and the downward trend in 1961 left the index 52 percent above the 1953 level.

Figure 2. Trends in Breeding-population Indexes by Management Units, 1953-1961

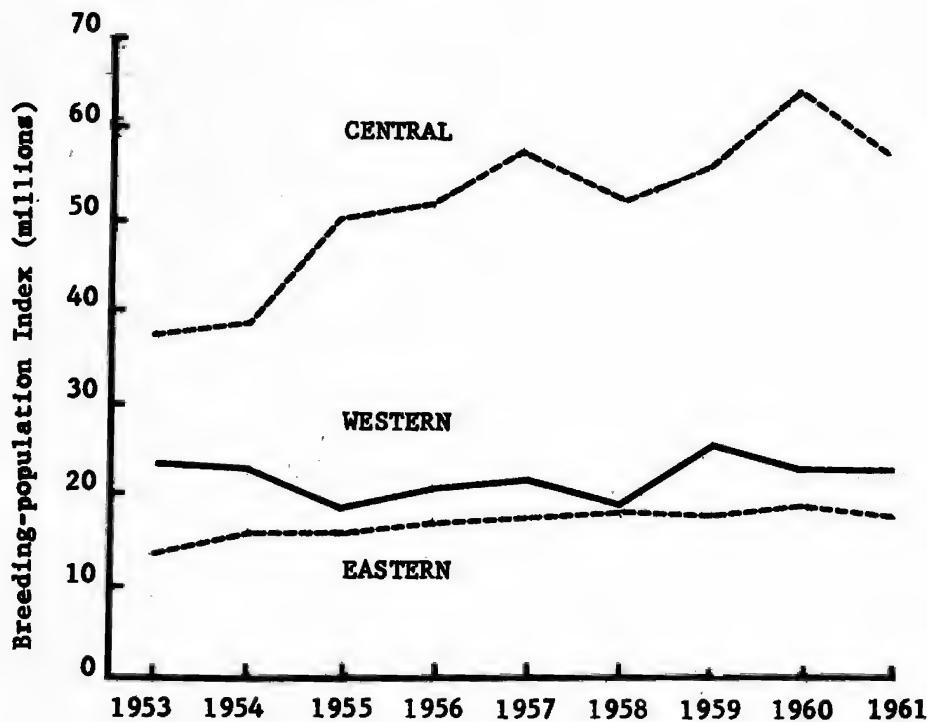
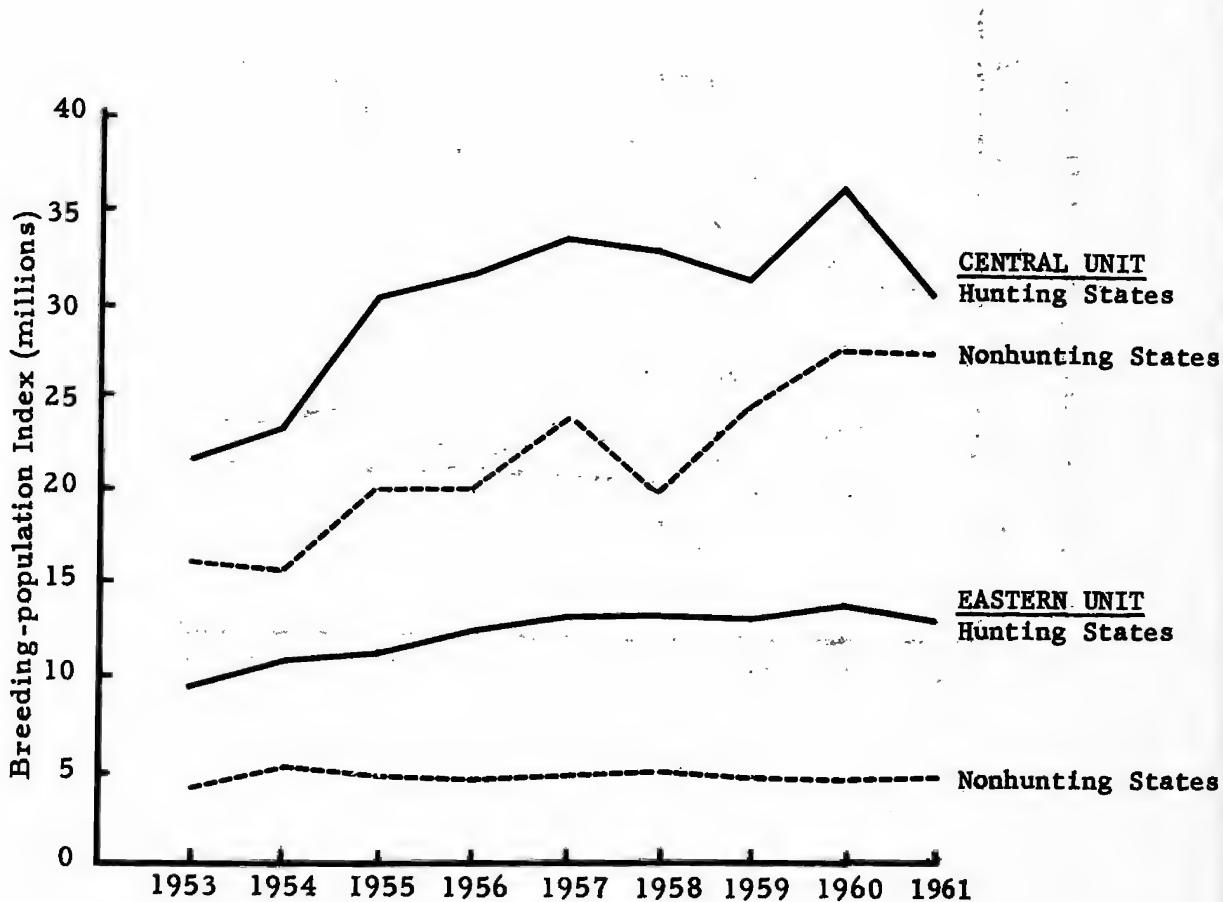


Figure 3. A Comparison of Trends in Breeding-population Indexes for Hunting and Nonhunting States within Management Units.



In hunting States of the Central Unit, the breeding index decreased 16 percent compared to 1960 but remained 40 percent above the 1953 level (table 1 and fig. 3). In nonhunting States, the index declined 1 percent between 1960 and 1961 (table 1). The long-term trend of the breeding index in nonhunting States of the Central Unit is shown in figure 3 and roughly follows the trend in hunting States. The 1961 index was 69 percent above the 1953 level.

Western Management Unit (fig. 1)

The breeding-population index for the Western Unit showed no change from the 1960 level (table 1). Figure 2 shows that the breeding index of the Western Unit has fluctuated moderately over an 8-year period and in 1961 was 5 percent below the 1953 level.

Discussion of Population-index Trends

Indexes to mourning dove breeding populations in the three management units showed small changes from the 1960 level. In recognition of the many variables in the call-count survey, changes of this magnitude must be considered insignificant. Long-term trends in the breeding indexes, however, are upward in the Central and Eastern Units. The index for the Western Unit is essentially unchanged from the 1953 level.

Over an 8-year period, hunting and nonhunting States in the Central Unit showed substantial increases in breeding indexes, 40 percent for the hunting States and 69 percent for the nonhunting States. Eastern Unit hunting States showed a population-index increase (36 percent) twice as great as the nonhunting States (18 percent) over the same 8-year period. The greater increase in the population index in hunting States occurred despite generally higher band-recovery rates from doves banded during the breeding season in hunting States than from those banded in non-hunting States (table 2).

For the United States as a whole, the 1961 breeding-population index was 7 percent below the 1960 level. The long-term trend has been generally upward since 1953 and the index is now 30 percent above the 1953 level.

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Table 1. Trends in Doves Heard Calling on Call-count Routes, 1960 to 1961

EASTERN MANAGEMENT UNIT - HUNTING STATES

State	Est. Dove Habitat (sq. mi.)	Compa- rable Routes	<u>Average Heard per Route and Indexes*</u>				Percent Change
			1960 Heard	Index	1961 Heard	Index	
Ala.	51,078	27	22.7	1,159	20.1	1,027	-11.5
Del.	1,978	1	49.0	97	36.0	71	-26.5
Fla.	54,262	24	12.9	700	12.0	651	-6.6
Ga.	58,518	19	24.0	1,404	20.4	1,194	-15.2
Ill.	55,947	32	31.6	1,768	36.0	2,014	+14.0
Ky.	40,109	19	28.3	1,135	26.7	1,071	-5.5
La.	45,177	27	14.8	669	13.7	619	-7.7
Md.	9,393	9	17.0	160	15.7	147	-7.6
Miss.	47,420	22	25.9	1,228	22.7	1,076	-12.3
N. C.	44,232	21	27.0	1,194	23.7	1,048	-12.3
Pa.	23,465	13	12.7	298	13.2	310	+3.6
R. I.	**	2	8.0	**	10.0	**	**
S. C.	30,594	20	32.0	979	31.7	970	-1.0
Tenn.	41,961	24	27.0	1,133	22.9	961	-15.3
Va.	37,904	10	43.2	1,637	40.6	1,539	-6.1
W. Va.	16,863	2	10.9	184	11.4	192	+4.5
Sub-total	558,901	272		13,745		12,890	-6.2

EASTERN MANAGEMENT UNIT - NONHUNTING STATES

Conn.	3,919	2	9.6	38	5.2	20	-46.2
Ind.	36,205	13	26.8	970	30.2	1,093	+12.6
Maine	**	3	3.0	**	3.0	**	**
Mass.	1,977	3	7.6	15	5.0	10	-34.8
Mich.	28,511	13	27.2	775	28.8	821	+5.7
N. H.	**	4	5.5	**	3.8	**	**
N. J.	7,522	8	18.3	138	16.3	123	-11.2
N. Y.	11,982	11	28.6	343	23.5	282	-18.0
Ohio	41,122	14	17.8	732	21.6	888	+21.3
Vt.	**	1	8.0	**	0.0	**	**
Wisc.	38,300	18	36.0	1,379	35.7	1,367	-0.9
Sub-total	169,538	90		4,390		4,604	+4.9

Eastern Unit

Total	728,439	362		18,135		17,494	-3.5
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Table 1. Trends in Doves Heard Calling on Call-count Routes, 1960 to 1961 (Cont.)

CENTRAL MANAGEMENT UNIT - HUNTING STATES

State	Est. Dove Habitat (sq. mi.)	Compa- rable Routes	Average Heard per Route and Indexes*				Percent Change
			1960		1961		
			Heard	Index	Heard	Index	
Ark.	52,725	9	28.0	1,476	30.5	1,608	+9.0
Colo.	72,777	11	34.9	2,540	16.8	1,223	-51.9
Kans.	92,113	34	61.7	5,683	62.7	5,775	+1.6
Mo.	69,270	18	49.5	3,429	44.6	3,089	-10.0
N. Mex.	109,360	13	55.6	6,080	37.4	4,090	-32.8
Okla.	69,283	12	45.1	3,125	46.0	3,187	+1.9
Texas	263,644	50	51.1	13,472	41.5	10,941	-18.7
Sub-total	729,172	147		35,805		29,913	-16.5

CENTRAL MANAGEMENT UNIT - NONHUNTING STATES

Iowa	55,986	16	66.0	3,695	82.5	4,619.	+25.0
Minn.	60,007	13	23.4	1,404	30.1	1,806	+28.8
Mont.	124,369	13	77.3	9,614	66.5	8,271	-14.0
Nebr.	76,653	8	81.8	6,270	66.3	5,082	-19.0
N. Dak.	70,054	23	35.0	2,452	36.9	2,585	+5.4
S. Dak.	73,475	8	29.4	2,160	35.5	2,608	+20.8
Wyo.	82,080	13	24.1	1,978	28.3	2,323	+17.3
Sub-total	542,624	94		27,573		27,294	-1.0

Central Unit

Total 1,271,796 241 63,378 57,207 -9.7

Table 1. Trends in Doves Heard Calling on Call-count Routes, 1960 to 1961 (Cont'd)

WESTERN MANAGEMENT UNIT - HUNTING STATES

State	Est. Dove Habitat (sq. mi.)	Compa- rable Routes	Average Heard per Route and Indexes*				Percent Change
			1960		1961		
			Heard	Index	Heard	Index	
Ariz.	113,580	18	26.3	2,987	47.1	5,350	+79.2
Calif.	141,123	27	59.5	8,397	42.7	6,026	-28.2
Idaho	49,685	14	30.8	1,530	27.2	1,351	-11.7
Nev.	108,704	24	24.1	2,620	29.6	3,218	+22.9
Oreg.	72,263	18	38.8	2,804	43.0	3,107	+10.7
Utah	74,111	17	35.2	2,609	28.0	2,075	-20.4
Wash.	46,884	16	35.3	1,655	31.0	1,453	-12.3
Western Unit							
Total	606,350	134		22,602		22,580	-0.1

* From a base year, average doves heard calling per route for each State has been adjusted annually according to the percentage change from the preceding year in counts on comparable routes. The index, expressed in thousands, is the product of the adjusted average doves heard per route and the estimated area of dove habitat.

** The area of dove habitat has not been estimated for Maine, New Hampshire, Rhode Island, and Vermont.

Table 2. Comparative Weighted Band-recovery Rates on a Management-unit Basis.

		Band-recovery Rate (percent)		
		Adults	Immatures	Locals
Eastern Management Unit	Hunting States	3.9	5.7	4.2
	Nonhunting States	1.1	1.1	1.7
	Average*	3.1	4.4	3.5
Central Management Unit	Hunting States	1.4	2.6	2.3
	Nonhunting States	1.9	0.8	0.9
	Average*	1.6	1.9	1.7
Western Management Unit	Hunting States	2.8	3.6	2.0

*The averages are weighted on the basis of the breeding indexes of the hunting and nonhunting zones of the management units (Kiel, 1959).

Table 3. Trends in the Breeding-population Index, 1953-61.

The first figure listed for each State by years is the adjusted average doves heard calling per route. The method of adjustment is described in the text. The base year for adjustments was 1956 or 1957. States for which 1957 was the base year are those that reorganized call-count routes in that year. These States are Alabama, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

The second figure for each State is the breeding-population index. The index, expressed in thousands, is the product of the adjusted average doves heard per route and the estimated area of dove habitat. (Habitat area is given in table 1.)

State	1953	1954	1955	1956	1957	1958	1959	1960	1961
Ala.	17.4 889	21.3 1,088	19.7 1,006	19.9 1,016	21.1 1,078	23.8 1,216	18.7 955	22.7 1,159	20.1 1,027
Ariz.	30.7 3,487	31.8 3,612	29.4 3,339	40.0 4,543	33.1 3,759	31.0 3,521	33.6 3,816	26.3 2,987	47.1 5,350
Ark.	34.6 1,824	27.1 1,429	32.0 1,687	29.4 1,550	32.6 1,719	33.7 1,777	30.0 1,582	28.0 1,476	30.5 1,608
Calif.	37.8 5,334	34.7 4,897	30.0 4,234	34.9 4,925	36.7 5,179	41.2 5,814	55.1 7,776	59.5 8,397	42.7 6,026
Colo.	no index	46.5 3,384	50.2 3,653	70.5 5,131	57.6 4,192	46.4 3,377	23.8 1,732	34.9 2,540	16.8 1,223
Conn.	5.0 20	0.0 0	5.6 22	5.5 22	9.0 35	7.0 27	6.0 24	9.6 38	5.2 20
Dela.	28.0 55	29.0 57	30.0 59	33.0 65	31.0 61	30.0 59	54.0 107	49.0 97	36.0 71
Fla.	18.2 988	15.2 825	16.7 906	14.6 792	13.8 749	11.0 597	11.0 597	12.9 700	12.0 651
Ga.	17.2 1,007	17.3 1,012	15.5 907	22.5 1,317	21.4 1,252	15.9 930	18.9 1,106	24.0 1,404	20.4 1,194
Idaho	22.8 1,133	30.0 1,491	26.3 1,307	26.8 1,332	27.0 1,341	23.8 1,183	26.7 1,327	30.8 1,530	27.2 1,351
Ill.	23.7 1,326	19.4 1,085	19.7 1,102	22.8 1,276	30.3 1,695	32.8 1,835	33.2 1,857	31.6 1,768	36.0 2,014
Ind.	23.5 851	42.4 1,535	35.7 1,293	29.3 1,061	32.8 1,188	34.0 1,231	35.4 1,282	26.8 970	30.2 1,093

State	1953	1954	1955	1956	1957	1958	1959	1960	1961
Iowa	28.2 1,579	32.9 1,842	41.5 2,323	44.1 2,469	57.6 3,225	50.6 2,833	82.6 4,624	66.0 3,695	82.5 4,619
Kan.	29.3 2,699	27.7 2,552	40.6 3,740	43.4 3,998	42.9 3,952	42.9 3,952	50.2 4,624	61.7 5,683	62.7 5,775
Ky.	14.4 578	17.9 718	18.9 758	23.0 923	22.3 894	27.8 1,115	27.4 1,099	28.3 1,135	26.7 1,071
La.	23.0 1,039	24.7 1,116	27.4 1,238	25.2 1,138	17.0 768	15.9 718	13.8 623	14.8 669	13.7 619
Maine**							1.5	2.5	3.0
Md.	10.1 95	22.2 209	15.9 149	18.6 175	17.8 167	17.0 160	19.7 185	17.0 160	15.7 147
Mass.	3.7 7	6.0 12	2.0 4	1.0 2	8.3 16	3.7 7	5.3 10	7.6 15	5.0 10
Mich.	13.0 371	16.6 473	21.9 624	20.6 587	22.1 630	24.8 707	30.1 858	27.2 775	28.8 821
Minn.	30.9 1,854	36.3 2,178	39.6 2,376	37.6 2,256	33.1 1,986	28.9 1,734	24.1 1,446	23.4 1,404	30.1 1,806
Miss.	15.7 744	18.3 868	20.5 972	21.2 1,005	26.0 1,233	31.7 1,503	25.8 1,223	25.9 1,228	22.7 1,076
Mo.	26.8 1,856	29.3 2,030	42.5 2,944	50.6 3,505	61.0 4,225	52.7 3,651	46.4 3,214	49.5 3,429	44.6 3,089
Mont.	24.8 3,084	18.8 2,338	37.9 4,714	41.8 5,199	36.8 4,577	38.2 4,751	39.0 4,850	77.3 9,614	66.5 8,271
Neb.	82.6 6,332	62.5 4,791	55.3 4,239	43.8 3,357	53.6 4,109	35.1 2,691	73.4 5,626	81.8 6,270	66.3 5,082
Nev.	26.2 2,848	27.5 2,989	28.4 3,087	27.2 2,957	28.0 3,044	18.1 1,968	33.2 3,609	24.1 2,620	29.6 3,218
N. H.**							3.0	4.7	3.8
N. J.	9.7 73	16.6 125	11.4 86	11.8 89	14.0 105	15.7 118	18.3 138	18.3 138	16.3 123
N. Mex.	28.7 3,139	25.8 2,821	42.8 4,681	31.7 3,467	23.0 2,515	24.5 2,679	32.0 3,500	55.6 6,080	37.4 4,090

State	1953	1954	1955	1956	1957	1958	1959	1960	1961
N. Y.	22.9 274	19.3 231	20.0 240	31.8 381	30.2 362	25.0 300	18.7 224	28.6 343	23.5 282
N. Car.	15.3 677	21.2 938	23.8 1,053	23.9 1,057	24.4 1,079	22.6 1,000	27.9 1,234	27.0 1,194	23.7 1,048
N. Dak.	9.8 687	17.1 1,198	18.0 1,261	21.6 1,513	24.7 1,730	30.3 2,123	33.1 2,319	35.0 2,452	36.9 2,585
Ohio	22.0 905	27.2 1,119	22.2 913	18.2 748	20.2 831	24.3 999	20.3 835	17.8 732	21.6 888
Okla.	13.4 928	23.0 1,594	32.1 2,224	42.1 2,917	51.0 3,533	55.8 3,866	55.2 3,824	45.1 3,125	46.0 3,187
Ore.	38.6 2,789	24.5 1,770	30.8 2,226	29.8 2,153	33.8 2,442	28.8 2,081	42.3 3,057	38.8 2,804	43.0 3,107
Penna.	9.5 223	13.7 321	11.8 277	13.2 310	15.0 352	13.1 307	14.3 336	12.7 298	13.2 310
R. I. **							14.0	8.0	10.0
S. Car.	18.9 578	31.2 955	29.6 906	29.6 906	30.0 918	31.6 967	30.2 924	32.0 979	31.7 970
S. Dak.	29.2 2,145	38.1 2,799	60.4 4,438	50.1 3,681	74.3 5,459	51.8 3,806	47.0 3,453	29.4 2,160	35.5 2,608
Tenn.	15.2 638	19.4 814	24.7 1,036	25.1 1,053	34.9 1,464	31.7 1,330	26.6 1,116	27.0 1,133	22.9 961
Texas	29.7 7,830	35.7 9,412	43.1 11,363	41.2 10,862	50.9 13,419	50.3 13,261	48.7 12,839	51.1 13,472	41.5 10,941
Utah	no index	88.3 6,544	42.4 3,142	38.0 2,816	43.5 3,224	28.6 2,120	43.5 3,224	35.2 2,609	28.0 2,075
Vt. **							1.0	8.0	0.0
Va.	13.2 500	16.0 606	18.2 690	22.2 841	32.2 1,221	40.6 1,539	43.2 1,637	43.2 1,637	40.6 1,539
Wash.	28.9 1,355	29.0 1,360	32.9 1,542	32.6 1,528	48.4 2,269	42.4 1,988	51.3 2,405	35.3 1,655	31.0 1,453

State	1953	1954	1955	1956	1957	1958	1959	1960	1961
W. Va.	8.6 145	8.6 145	7.0 118	16.0 270	7.7 130	3.4 57	4.2 71	10.9 184	11.4 192
Wisc.	36.8 1,409	39.7 1,521	42.4 1,624	44.2 1,693	37.9 1,452	34.3 1,314	31.6 1,210	36.0 1,379	35.7 1,367
Wyo.	no index	5.6 460	7.5 616	18.1 1,486	30.9 2,536	22.7 1,863	26.4 2,167	24.1 1,978	28.3 2,323
<hr/>									
TOTAL INDEX * 77,262 85,119 88,372 96,118 89,074 98,665 104,115 97,281									
PERCENTAGE CHANGE	+3.6	+10.2	+3.8	+8.8	-7.3	+10.8	+5.9	-6.6	

* The 1953 index is incomplete because Colorado, Utah, and Wyoming did not conduct call-count surveys until 1954. The percentage change from 1953 to 1954 is based on comparable data only.

** Maine, New Hampshire, Rhode Island, and Vermont first established call-count routes in 1959. No estimate has been made of the square miles of dove habitat in these States.

Table 4. Summary of Call-count Routes by States.

Includes all routes run in 1961 but only comparable routes for 1960.

ALABAMA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
5R	Madison	54	44	36	33	69R	Perry-Hale	65	39	48	47
8R	Colbert-					75R	Lee-Macon	28	18	5	25
	Franklin	18	3	10	11	76R	Lee	23	22	2	2
20R	Morgan-					77R	Choctaw	14	12	3	6
	Marshall	45	40	24	32	81R	Dallas	17	12	5	12
22R	Cherokee-					89R	Wilcox	14	9	10	6
	Etowah	20	49	41	102	90R	Wilcox-				
23R	Cherokee-						Butler	23	9	2	9
	DeKalb	42	46	35	22	96R	Choctaw-				
29R	Etowah	39	37	2	4		Washington	4	2	3	0
34R	Walker	28	38	21	24	99R	Monroe	6	4	1	4
35R	Jefferson	23	18	18	10	103R	Pike-Coffee-				
43R	Jefferson	14	22	6	6		Barbour	31	15	20	10
47R	Claburne-					105R	Barbour-				
	Randolph	24	25	22	17		Henry	37	32	20	21
52R	Shelby-Bibb	7	4	--	1	107R	Clarke	23	30	15	27
59R	Hale-Perry	14	10	3	11	116R	Washington-				
63R	Coosa-						Mobile	3	7	0	9
	Elmore	11	3	11	1	121R	Covington	8	12	6	6

ARIZONA

1	Graham	22	38	152	211	11	Greenlee	36	31	127	184
2	Graham	1	61	27	22	12	Yavapai	27	22	1	6
3	Santa Cruz	33	67	17	28	13	Coconino	7	6	3	1
4	Pima	17	28	72	164	14	Yuma	25	43	64	131
5	Maricopa	19	104	486	498	15	Mohave	36	109	32	105
6	Maricopa	32	53	415	247	16	Maricopa	47	38	77	240
7	Maricopa	24	26	174	315	17	Santa Cruz	--	34	--	69
8	Maricopa	22	62	27	33	19	Yuma	26	37	101	182
9	Maricopa	18	20	38	6	21	Cochise	5	11	15	6
10	Pima	31	11	77	29						

ARKANSAS

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
1	Arkansas	72	91	152	154	9	Scott	6	9	4	14
2	Arkansas	71	83	48	118	10	Marion	20	14	4	22
5	Ouachita	14	14	42	45	11	Madison	23	15	3	17
6	Ouachita	11	11	38	44	12	Van Buren	15	12	3	15
8	Montgomery	2	6	11	2						

CALIFORNIA

1	Los Angeles	17	25	60	38	16	Sacramento	11	20	24	14
2	Los Angeles	63	58	54	83	17	Modoc	43	49	11	56
3	Sutter	31	22	14	29	18	Merced	15	11	30	31
4	Butte	84	55	130	39	19	Imperial	108	110	776	350
5	Humboldt	2	0	7	2	21	Monterey	--	22	--	42
6	Modoc	21	38	13	45	23	Alameda	38	45	19	36
7	Tehama-					24	Santa Clara	29	13	17	22
	Shasta	52	34	22	79	27	San				
8	Imperial	122	110	404	660		Bernardino	7	7	19	14
9	Imperial	50	41	107	120	28	Imperial	9	6	19	17
10	Imperial	56	42	190	109	29	Riverside	10	7	16	10
11	Riverside	42	28	153	95	30	Sacramento	49	20	124	81
12	Ventura	59	83	28	14	31	El Dorado	57	66	17	26
13	Los Angeles	5	17	10	6	32	Kern	310	68	92	18
14	Colusa	64	24	54	44						
15	San Joaquin	59	15	121	90						

COLORADO

1	Crowley	218	47	63	34	10	Weld	18	14	26	35
3	Alamosa	26	8	8	9	11	Moffat	--	9	--	8
4	Otero	--	45	--	125	12	Douglas	29	19	20	6
5	Bent	23	46	86	83	16	Phillips	22	18	14	13
6	Prowers	27	26	78	52	17	Yuma-				
7	Adams	36	13	41	19		Washington	17	0	2	1
9	Arapahoe	22	23	20	27	18	Yuma	15	4	11	17

CONNECTICUT

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
2	New London	8	4	0	5	3	New Haven	5	3	7	5

DELAWARE

1	Kent	49	36	7	2
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FLORIDA

1	Dade	14	13	43	137	13	Washington	9	30	4	5
2	Charlotte	17	10	14	50	14	Walton	6	8	2	1
3	Lee	7	12	0	1	15	Santa Rosa	11	8	2	2
4	Highlands	30	13	9	11	16	Franklin	1	2	--	0
5	Polk	16	9	2	0	17	Leon	16	14	1	1
6	Marion	9	1	--	3	18	Levy-Marion	27	19	28	9
7	Levy	21	29	7	2	19	Levy-Alachua	21	23	28	27
8	Lafayette	12	15	3	2	20	Polk	15	8	3	3
9	Volusia	11	16	--	2	21	Orange	17	11	16	20
10	Columbia	5	0	0	5	22	Alachua	16	21	3	5
11	Gadsden-Leon	15	14	2	0	23	Alachua	4	2	1	4
12	Bay	0	9	0	0	24	Alachua	17	9	11	0

GEORGIA

10R	Gilmer-					31R	Haralson-				
16R	Pickens	37	9	43	3	38R	Carroll	8	9	7	18
16R	Gordon-					Heard	21	7	14	12	
18R	Bartow	30	23	18	9	47R	Troup-				
18R	Dawson-					Chambers,					
25R	Forsyth	18	12	14	7	Ala.	17	8	13	11	
25R	Cobb-					Upson	20	15	15	10	
27R	Cherokee	8	7	9	9	67R	Screve-				
27R	Gwinnett-					Jenkins	52	23	15	3	
29R	Barrow	28	13	25	12	79R	Chattahoo-				
29R	Madison-					chee-Stewart	1	9	2	0	
	Oglethorpe	17	58	17	34						

Continued--

GEORGIA - Continued --

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
85R	Laurens-					111R	Wayne	11	22	6	5
	Wheeler	19	17	6	23	118R	Irwin-				
90R	Effingham	18	25	4	8		Berrien	38	19	22	21
105R	Worth-Turner	42	29	16	36	121R	Pierce	16	34	35	10
						140R	Lowndes	6	6	0	2

IDAHO

1	Bingham	29	15	35	27	14	Jefferson	77	46	28	19
2	Power	53	55	18	19	15	Bonneville	44	26	62	46
3	Bannock	40	40	29	13	16	Canyon	44	44	48	38
5	Power	8	5	45	41	18	Franklin	33	49	74	52
7	Nez Perce	24	26	15	32	20	Jerome-				
9	Ada-Canyon	11	25	32	63		Gooding	--	54	--	86
11	Nez Perce	28	40	56	17	22	Bonner-				
12	Adams-						Kootenai	30	7	1	0
	Washington	46	21	29	52	24	Gem-Payette	115	115	133	117
						26	Lincoln	--	67	--	29

ILLINOIS

1	Cook-Lake	34	34	11	10	15	Champaign	20	19	8	3
2	Lake	41	32	17	14	16	Whiteside	5	8	16	18
3	Williamson	52	52	41	38	17	Madison	9	35	19	35
4	Williamson-					18	Madison-				
	Jackson	42	61	20	11		Jersey	25	48	26	49
5	Ogle	20	20	12	8	19	DeKalb	2	6	8	12
6	Ogle	22	19	7	3	20	Mason	42	54	19	25
7	Hancock	31	41	8	19	21	Mason	43	82	22	10
8	Marshall-					22	St. Clair	75	10	13	14
	Putnam	11	4	8	2	23	St. Clair	12	7	78	21
9	Fulton-					24	St. Clair-				
	McDonough	48	96	5	16		Monroe	21	30	25	25
10	Union	20	35	21	37	25	Lee	9	14	13	21
11	Macon	19	3	7	10	26	Lee	16	14	5	7
12	Ogle	26	26	2	5	27	St. Clair	36	27	75	58
13	Washington	99	67	37	83	30	Winnebago	9	35	8	13
14	Lawrence	58	71	51	43	31	Winnebago	41	47	21	19

Continued--

ILLINOIS - Continued --

Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961

32	St. Clair- Madison	20	30	44	9
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Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961

33	Tazewell	26	33	15	10
34	Knox	39	49	16	30

INDIANA

4	Daviess	40	43	32	32
9	Jackson	36	22	54	13
10	Newton	25	33	5	22
12	Wayne	--	56	--	24
13	Fulton	13	19	23	13
14	Grant	23	9	30	15
15	Daviess	53	54	65	73

16	Orange	51	40	102	29
17	Morgan	19	15	36	19
18	Boone	18	22	26	7
19	Whitley	38	55	8	3
20	Whitley	36	44	24	12
21	Newton	54	96	35	27
22	LaGrange	15	22	6	9

IOWA

1	Clay	25	26	12	8
2	Clay (North)	48	34	23	32
3	Winnebago	--	41	--	141
4	Worth	--	56	--	183
5	Story	16	16	34	32
6	Boone	13	20	29	45
7	Emmet	--	24	--	18
9	Polk-Dallas	33	44	32	21
10	Mills-				
	Fremont	98	71	63	37
11	Lee	29	42	37	37
12	Bremer- Fayette	34	23	12	12

13	Chickasaw-				
	Bremer	27	30	23	14
15	Linn	42	64	22	21
16	Clarke-				
	Decatur	62	135	101	113
17	Kossuth	44	66	40	37
18	Franklin	18	22	24	26
19	Wapello	45	78	25	25
20	Benton	49	52	31	38
21	Woodbury	44	61	36	79
22	Cedar	--	52	--	14

KANSAS

1	Reno	82	81	64	152
2	Sedgwick	101	102	86	110
3	Barton	50	50	22	89

4	Saline	136	86	97	122
5	Shawnee	38	143	18	83
6	Montgomery	37	33	31	73

Continued--

KANSAS - Continued --

Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961
7	Cloud	197	91	131	114
8	Marshall	53	34	52	74
9	Lyons	--	51	--	78
10	Crawford	47	96	34	54
11	Barber	49	97	74	138
12	Linn	147	112	59	41
13	Franklin	84	125	46	65
14	Russell	45	46	60	73
15	Barton	45	65	55	49
16	Rush	38	35	55	85
17	Ness	37	36	49	25
18	Finney	28	38	37	40
19	Finney	63	78	74	144
20	Pratt	96	58	74	89
21	Cherokee	102	88	150	155

Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961
22	Bourbon	72	107	91	191
23	Atchison	216	276	147	255
24	Sherman	2	0	1	0
25	Morton	--	12	--	30
27	Pottawatomie	72	92	96	128
28	Marion	73	29	90	100
29	Clay	31	31	164	102
30	Smith	43	54	72	53
31	Hodgeman	70	79	54	15
33	Ford	66	63	78	27
34	Grant	2	6	13	11
35	Rawlins	54	59	63	46
37	Greenwood	53	28	19	50
38	Hamilton	104	42	45	54
39	Meade	44	55	71	69
40	Riley	--	32	--	27

KENTUCKY

1R	Kenton-							
	Pendleton	8	20	8	11	43R	Crittenden	30
2R	Trimble-					49R	Hart	24
	Henry	4	17	4	10	53R	Lincoln-	26
17R	Brecken-					59R	Rockcastle	25
	bridge-Meade	52	46	16	10	60R	Ballard-	18
20R	Spender-					64R	McCracken	7
	Nelson	28	24	16	9	69R	Muhlenburg-	14
23R	Bath-					79R	Logan	7
	Montgomery	15	15	2	0	82R	Christian	10
25R	Lawrence-					82R	Christiansburg	27
	Johnson	10	2	3	2	92R	Logan-	30
27R	Henderson	93	102	92	105	92R	Warren	13
34R	Washington	9	27	2	13	95R	Graves-	56
41R	Floyd	6	1	6	0	95R	Weakley, Tenn.	22
						96R	Whitley-	17
							Campbell,	
							Tenn.	
							Bell	0
								0
								0

LOUISIANA

Rt. No.	County	Heard 1960 1961		Seen 1960 1961		Rt. No.	County	Heard 1960 1961		Seen 1960 1961	
1	Sabine-					15	Lafayette	22	30	21	3
	Vernon	1	7	7	5	16	Vermillion	14	2	5	0
2	Webster-					17	Morehouse	25	33	10	8
	Claiborne	30	11	18	9	18	Ibererville-				
3	Acadia	1	2	5	7		Ascension	7	4	21	4
5	E. Baton					19	Terrebonne	4	5	2	5
	Rouge-Iber-					20	Rapides	18	9	27	19
	ville	4	2	0	0	21	Rapides	19	19	10	31
7	E. Feliciana	10	2	1	0	24	Grant	33	32	25	36
8	Tangipahoa	10	7	8	6	25	Vernon	8	18	15	5
9	Concordia	41	24	20	10	26	Lafayette-				
10	Caldwell-						St. Martin	30	19	34	12
	Ouachita	10	7	7	1	27	Lafayette-				
11	Rapides	3	4	1	3		St. Martin	27	17	35	10
12	Rapides	6	8	4	6	28	Bienvenue	34	36	26	13
13	Vernon-					29	Pointe Coupe	17	19	16	15
	Natchitoches	19	10	4	1	30	Union	5	9	12	8
14	Natchitoches	16	48	3	1	32	Vernon	13	10	8	0

MATINE

1	Kennebec-				2	Kennebec-			
	Lincoln-					Sagadahoc			
	Sagadahoc	3	3	1	5	York	2	1	1
							4	5	0
									1

MARYLAND

1	Howard	32	32	3	3	6	Cecil	9	15	17	13
2	Prince					7	Kent	17	10	12	9
	Georges	10	7	18	3	8	Queen Annes	17	11	11	11
3	Washington	21	20	18	15	9	Caroline	19	21	16	19
5	Prince					12	Wicomico	6	1	0	1
	Georges	27	29	16	0						

MASSACHUSETTS

Rt.		Heard		Seen		Rt.		Heard		Seen	
No.	County	1960	1961	1960	1961	No.	County	1960	1961	1960	1961
1	Barnstable	--	2	--	0	13	Worcester	--	0	--	0
2	Barnstable	--	0	--	0	14	Worcester	--	0	--	1
3	Plymouth	--	10	--	3	16	Hampshire	--	10	--	7
4	Plymouth	--	8	--	2	17	Franklin	--	3	--	1
5	Bristol-					18	Franklin-				
	Plymouth	11	7	0	1		Hampshire	--	5	--	2
6	Bristol	9	4	0	0	19	Hampden	--	5	--	6
7	Norfolk	--	11	--	1	20	Hampshire	--	0	--	2
8	Essex	--	8	--	0	21	Hampshire	--	0	--	0
9	Middlesex	--	8	--	0	22	Berkshire	--	2	--	1
10	Worcester	--	4	--	11	23	Berkshire	--	1	--	0
11	Worcester	--	4	--	5	24	Essex	3	4	1	4
12	Worcester	--	2	--	0						

MICHIGAN

1	Washtenaw	29	50	15	12	11	Newaygo	17	21	0	10
2	Washtenaw	55	19	19	17	12	Newaygo	17	27	2	9
3	Bay	39	22	5	2	13	Ingham	17	9	11	4
4	Tuscola	25	18	1	5	15	Kalamazoo	67	80	26	18
5	Tuscola	6	11	2	1	24	Allegan	21	64	11	21
6	Monroe	34	33	15	27	25	Calhoun	21	27	15	1
9	Bay	39	28	5	5	Gladwin	--	47	--	8	

MINNESOTA

1	Jackson	16	37	15	39	11	Ottertail	26	19	8	4
2	Jackson	26	47	26	11	12	Dodge	47	59	22	7
6	Olmsted	18	20	24	17	14	Lincoln	77	80	31	29
7	Scott	26	40	30	21	15	Pope	41	43	4	13
8	Polk-Red					16	Pennington	18	25	15	38
	Lake	22	14	14	12	17	Roseau	2	14	21	0
9	Beltrami	21	20	12	5	18	Kandiyohi	42	74	22	25
10	Dakota	--	28	23	20						

MISSISSIPPI

Rt.		Heard		Seen				Heard		Seen	
No.	County	1960	1961	1960	1961	No.	County	1960	1961	1960	1961
7R	Tishomingo-					50R	Holmes-				
	Alcorn	55	29	38	15		Yazoo	50	66	33	50
12R	Union	249	113	55	117	56R	Sharkey-				
13R	Prentiss-						Issaquena	32	26	85	26
	Lee	33	44	48	56	60R	Leake	8	6	20	17
15R	Cashema-					73R	Rankin	8	12	10	50
	Bolivar	30	37	40	54	74R	Smith	7	12	15	41
22R	Itawamba	34	42	25	52	78R	Jefferson	8	7	4	5
25R	Talla-					89R	Lincoln	20	25	16	16
	hatchie	30	38	40	46	94R	Wayne	14	10	5	6
28R	Chickasaw	42	47	27	40	95R	Wayne	15	20	11	33
33R	Sunflower-					101R	Lamar-				
	LeFlore	28	37	35	38		Marion	11	9	9	24
35R	Montgomery	32	26	41	34	113R	Hancock	2	4	1	0
43R	Carroll-					115R	Jackson	0	0	0	0
	Holmes	57	61	40	48						

MISSOURI

1	Boone	74	93	63	60	11	St. Charles	52	36	18	26
2	Boone-					13	DeKalb-				
	Callaway	62	99	49	74		Daviess	56	85	47	49
3	Callaway	48	37	47	39	14	Daviess-				
4	Cole	43	51	43	36	15	Caldwell	84	44	61	97
5	Cape					16	Lawrence	30	28	74	73
	Girardeau	69	67	22	56	17	Lawrence	34	32	93	100
6	Cape					18	Marion	82	51	51	61
	Girardeau	64	54	28	41	19	Marion	38	25	31	52
7	Howell-					20	Chariton	108	77	82	42
	Douglas	41	33	6	3	22	St. Charles	--	35	--	19
8	Texas	16	18	10	3	23	Greene	31	19	22	22
9	Greene	25	12	38	18						

MONTANA

1	Yellowstone	11	23	8	9	3	Yellowstone	3	10	3	6
2	Lewis-Clark	20	11	23	1	8	Phillips	134	103	20	40

Continued--

MONTANA - Continued --

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
9	Phillips	203	194	25	39	28	Pondera-				
10	Phillips	45	26	9	9		Toole	13	12	1	5
11	Sheridan	8	10	2	4	29	Madison-				
12	Sheridan	0	2	5	4		Beaverhead	18	20	43	25
13	Sheridan-					35	Sweet Grass	85	83	21	34
	Roosevelt	9	11	11	14	38	Musselshell	--	35	--	5
14	Madison	28	15	13	28	39	Big Horn	--	0	--	18
15	Revelli	0	0	62	0	40	Wheatland	--	29	--	34
17	Lincoln	14	0	1	6	41	Broadwater	9	19	21	40
27	Toole	0	3	0	8	44	Broadwater	18	21	24	6
						45	Lake	--	41	--	12

NEBRASKA

1	Lancaster	92	80	113	107	10	Red Willow	--	7	--	16
2	Lancaster	80	100	78	79	11	Platte	36	24	62	69
3	Adams	56	45	73	62	12	Lincoln	31	43	89	73
4	Adams	40	52	89	41	13	Garden	--	34	--	4
5	Hamilton	159	83	117	81	14	Cherry	64	25	25	22
9	Frontier	--	44	--	35						

NEVADA

1	Churchill	34	32	69	35	13	Clark	12	2	7	1
2	Clark	81	71	55	40	14	Clark	4	14	0	2
3	Clark-					15	Elko	5	60	0	18
	Mohave	39	29	52	62	16	Washoe	55	19	12	4
4	Clark	15	4	41	22	17	Lincoln	8	15	3	2
5	Clark	36	17	5	18	18	Lyon	4	6	4	2
6	Elko-					19	White Pine	0	0	1	0
	White Pine	26	11	5	5	20	Lincoln	15	50	9	4
7	Elko	21	17	25	39	21	Lander	2	0	0	1
8	Lyon	16	8	7	6	22	Lander	4	3	0	1
9	Washoe	45	58	7	11	23	Elko	5	9	59	5
10	Lincoln	23	109	49	915	24	Lander	6	1	6	0
11	Nye	101	125	160	58	25	Lyon	1	0	17	0
12	Pershing	9	37	23	406	26	Eureka	6	4	0	4

NEW HAMPSHIRE

Rt.		Heard		Seen		Rt.		Heard		Seen	
No.	County	1960	1961	1960	1961	No.	County	1960	1961	1960	1961
2	Merrimac-					4	Stafford	4	2	2	1
	Rockingham	2	3	8	1	5	Stafford-				
3	Stafford,						Rockingham	8	5	4	1
	N. H. -										
	York, Maine	8	5	0	1						

NEW JERSEY

1	Sussex	5	8	3	4	7	Salem	40	31	1	2
2	Sussex	7	10	6	1	9	Ocean	17	14	2	0
4	Hunterdon	18	15	21	9	10	Hunterdon	18	20	27	16
5	Cumberland	6	2	9	6	11	Somerset	68	59	44	38

NEW MEXICO

2	Bernalillo-					17	Valencia-				
	Sandoval-						Socorro	46	54	119	115
	Santa Fe	324	37	21	5	18	Valencia	14	19	16	20
3	Grant	--	60	--	66	19	Chaves	24	15	1	17
5	Dona Ana-					20	San Miguel	5	7	0	2
	Hidalgo	--	14	--	78	23	Union	--	26	--	0
6	Grant	49	44	18	9	28	Lea	--	1	--	0
7	Grant-					31	Socorro	54	100	55	66
	Hidalgo-Luna	50	45	28	40	33	Dona Ana	--	5	--	38
10	Chaves	12	25	9	29	34	San Juan	27	25	120	40
12	Chaves	35	74	12	22	35	Santa Fe	72	39	2	7
16	Socorro	77	46	31	37						

NEW YORK

3	Orleans-					13	Wayne	22	10	2	0
	Genesee	69	48	16	6	14	Ulster	22	22	10	2
4	Wayne	31	35	10	4	16	Columbia	8	2	8	4
7	Suffolk	40	33	12	11	17	Dutchess	17	14	10	0
8	Jefferson	14	16	4	8	18	Westchester	12	9	7	0
12	Tompkins	3	7	6	1	19	Putnam	6	4	0	3
						20	Albany	--	4	--	6

NORTH CAROLINA

Rt. No.	County	Heard 1960 1961		Seen 1960 1961		Rt. No.	County	Heard 1960 1961		Seen 1960 1961	
16R	Hertford-					65R	Wilson-				
	Gates	43	37	64	42		Greene	51	27	68	48
22R	Yadkin	54	22	17	21	70R	Macon	11	6	55	7
24R	Guilford-					77R	Mecklenburg-				
	Caswell-						Cabarrus	36	16	11	33
26R	Alamance	41	24	52	32	80R	Montgomery-				
	Durham-						Moore	14	5	17	16
26R	Person	26	24	6	20	85R	Wayne-				
36R	Wilkes-						Duplin	57	44	54	49
	Caldwell	13	10	7	2	92R	Jackson	3	4	0	2
52R	Madison-					96R	Richmond-				
	Buncombe	2	5	0	8		Montgomery	15	11	6	9
54R	Burke	10	4	2	0	98R	Hope-				
58R	Davidson	52	14	9	3		Cumberland	31	55	18	21
60R	Randolph-					99R	Cumberland	34	59	49	24
	Chatham	15	27	31	13	101R	Sampson	28	50	17	18
63R	Wake-					112R	Onslow	15	21	14	18
	Johnson	16	32	35	33						

NORTH DAKOTA

1	Burleigh	29	23	28	25	15	Burke-Ward	3	2	4	4
2	Burleigh	50	58	24	29	16	Williams	7	15	7	20
3	McHenry-					17	Williams	5	2	1	3
	Bottineau	56	40	12	12	18	Walsh-				
4	Sheridan	9	11	5	15		Pembina	36	33	22	25
5	Stutsman	31	32	12	46	19	Walsh	31	27	20	28
6	Stutsman	26	29	30	23	20	Sargent	41	53	34	21
7	McHenry	27	57	20	23	21	Ward	9	13	10	13
8	Ward-					22	Mountrail	5	2	8	1
	Renville	73	96	11	11	23	Starke	28	7	29	20
9	Ward	133	158	17	17	24	Golden				
12	Ward	13	12	2	9		Valley	8	8	3	17
13	Ward	--	15	--	10	25	Kidder	30	11	5	14
14	Burke	1	3	4	10	26	McLean	16	11	19	19

OHIO

Rt.		Heard		Seen		Rt.		Heard		Seen	
No.	County	1960	1961	1960	1961	No.	County	1960	1961	1960	1961
1	Ottawa	14	23	26	20	14	Wood	20	11	21	18
2	Franklin	15	7	44	17	15	Wood	13	16	19	20
3	Franklin	24	26	50	12	17	Union	17	41	21	19
9	Franklin	5	14	15	24	18	Highland	41	37	13	12
10	Pickaway-					19	Union	28	27	7	5
	Ross	38	40	28	25	20	Delaware	40	69	15	10
11	Athens	--	8	--	2	21	Delaware-				
12	Wood	15	16	40	34		Union	23	28	36	14
13	Wood	8	10	11	14						

OKLAHOMA

2	Tulsa-					10	Kingfisher	43	46	75	66
	Rogers	12	15	25	23	11	Alfalfa	59	84	138	79
3	Latimer-					13	Muskogee	21	17	21	23
	Pittsburg	11	9	16	12	14	Greer	--	35	--	168
4	Wagoner	8	18	10	30	15	Love	104	107	56	158
6	Comanche	21	26	5	8	16	Johnston	77	64	30	40
8	Cotton	60	46	106	72	17	Woodward	152	143	94	34
9	McIntosh	18	22	18	16						

OREGON

1	Umatilla	29	34	30	20	10	Wasco	28	38	16	15
2	Jackson	47	41	51	44	11	Morrow	57	68	88	73
3	Umatilla	40	44	36	38	12	Grant	40	49	23	25
4	Yamhill-					13	Baker	17	20	20	54
	Polk	44	34	32	33	14	Harney	26	28	2	4
5	Klamath	53	75	14	10	15	Malheur	22	22	25	26
6	Deschutes	23	33	17	10	17	Hood River	17	10	24	12
7	Wasco	50	52	29	45	18	Lake	34	17	18	4
8	Linn	18	13	6	9	19	Jefferson	42	53	44	70
9	Douglas	85	113	53	1						

PENNSYLVANIA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
2	Centre	6	2	0	1	13	York	23	23	16	13
3	Centre	6	6	4	0	14	Perry	17	12	11	4
5	Elk	2	3	0	0	15	Perry	7	16	21	5
6	Elk-					16	Indiana	8	3	4	2
	Jefferson	1	6	4	1	17	Indiana	11	18	2	5
8	Lycoming-					18	Franklin	72	95	24	13
	Clinton	1	0	1	0	20	Lancaster	11	12	19	24
10	Franklin	28	4	54	5						

RHODE ISLAND

1	Providence-					2	Washington	12	13	2	2
	Kent	4	7	16	0						

SOUTH CAROLINA

4R	Cherokee-					50R	Aiken	62	44	31	37
	Cleveland					51R	Orangeburg-				
	(N. C.)	47	36	67	63		Aiken	33	32	18	4
6R	Oconee-					53R	Clarendon	31	40	11	19
	Rabun (Ga.)	12	5	1	1	54R	Clarendon-				
10R	Union-						Williamsburg	14	24	3	0
	Chester	38	39	9	6	56R	Williamsburg-				
14R	Chesterfield	68	53	16	30		Georgetown	17	19	19	5
18R	Laurens	31	31	25	34	59R	Orangeburg	28	22	10	7
25R	Marlboro	73	73	37	29	60R	Orangeburg	31	47	42	19
27R	Abbeville	41	32	18	13	70R	Barkley-				
32R	Kershaw-						Charleston	1	3	0	3
	Richland	13	8	12	4	71R	Hampton-				
47R	Horry	27	40	21	20		Jasper	39	35	9	27
48R	Edgefield	15	26	6	15	73R	Charleston-				
							Dorchester	2	8	1	1

SOUTH DAKOTA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
1	Brown	39	35	24	40	7	Corson	32	23	19	38
2	Brown	32	49	53	40	8	Hughes	33	44	13	24
3	Hanson- Davison	38	28	51	57	9	Kingsbury	36	64	26	42
4	Aurora	15	17	48	11	10	Lyman	11	25	25	6

TENNESSEE

6R	Macon- Allen (Ky.)	36	12	18	14	44R	DeKalb- Cannon	25	25	24	30
7R	Clay- Jackson	35	33	39	34	47R	Morgan- Cumberland	20	16	3	1
9R	Pickett- Wayne (Ky.)	36	21	22	42	53R	Lauderdale	19	21	82	67
10R	Scott- McCreary (Ky.)	1	5	0	3	55R	Crockett- Haywood	15	18	55	76
14R	Dyer	18	19	66	74	57R	Henderson	61	49	34	39
20R	Dickson	24	27	30	43	61R	Maury	40	28	17	21
23R	Smith	25	20	31	31	63R	Rutherford	51	50	24	27
24R	Jackson	38	20	26	14	67R	Cumberland- Rhea	48	19	16	2
29R	Union- Claiborne	18	19	22	4	71R	Sevier	16	17	7	2
31R	Hawkins- Green	13	22	46	34	75R	Hardeman- Madison	26	22	8	13
36R	Gibson	16	18	56	61	84R	Grundy- Sequatchee	9	3	0	0
38R	Benton	53	55	24	46	89R	Shelby	30	31	65	59

TEXAS

1	Wise	22	39	45	46	12	Harris	45	20	66	52
2	Wise	26	20	12	27	13	Brazoria	--	17	--	18
3	Robertson	29	32	43	24	14	Hidalgo	32	30	207	356
4	Robertson	44	47	37	37	15	Chambers	--	10	--	70
7	Bosque	84	48	83	72	16	Travis	18	6	20	16
8	Bosque	97	60	27	22	18	Kleberg	43	21	308	97
9	Wilson	448	414	211	193	19	Crockett	37	41	8	9
10	Wilson	354	213	132	148	20	Crockett	27	8	13	4
11	Victoria	3	8	33	45	22	Val Verde	6	3	59	12

Continued--

TEXAS - Continued --

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
25	Lubbock	2	3	13	17	48	Cameron	41	45	157	141
26	Lubbock	4	3	8	19	49	Dewitt	54	68	165	265
27	Webb	16	19	57	45	50	Bee	25	11	191	139
28	Jefferson	13	23	28	99	51	Colorado	46	3	217	103
29	Bexar	51	47	42	22	52	Hudspeth	10	15	15	0
31	Wise	40	87	64	49	53	El Paso	6	0	56	17
32	Childress	53	63	334	309	54	Reeves	33	7	11	13
34	Hemphill	31	43	56	58	55	Tarrant	46	5	37	25
35	Hemphill	26	17	46	55	56	Midland-				
36	Randall	45	41	27	75		Glasscock	--	4	--	7
37	Randall	10	34	15	68	57	Dawson	55	14	45	13
40	Taylor	114	18	102	47	58	Brown	96	86	99	89
41	Taylor	110	27	122	65	59	Edwards	26	10	29	14
42	Jefferson	14	24	33	90	63	Lamar	27	95	182	362
43	Roberts	29	45	47	79	64	Smith	31	23	38	30
44	Roberts	36	36	47	44	65	Hopkins	0	7	36	24
45	Tom Green	90	34	157	118	66	Nacogdoches	19	89	130	42
46	Tom Green	85	45	188	102	67	Nacogdoches	36	64	177	42
47	Willacy	125	90	14	36						

UTAH

2	Cache	33	13	17	28	16	Juab	81	46	38	64
4	Tooele	41	53	62	32	17	Juab-				
5	Juab-						Millard	24	31	139	90
	Tooele	27	24	2	2	19	Garfield	17	11	0	4
8	San Juan	5	4	38	68	22	Beaver	29	31	7	40
9	Carbon-					23	Washington	34	51	14	28
	Emery	16	8	5	2	24	Rich	36	49	26	31
11	Kane	20	21	4	2	28	Grand	14	4	16	8
13	Wayne-Emery	26	8	18	66	29	Summit	9	3	10	21
15	Salt Lake	42	8	58	30	30	Juab	50	36	64	46

VERMONT

1	Addison	8	0	0	1
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VIRGINIA

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
1	Alexandria-					6	Nansemond-				
	Fairfax	23	23	18	21		Isle of				
2	Fairfax	24	36	14	10		Wight	61	37	49	11
3	Westmore- land-					7	Campbell	51	29	13	16
	Richmond	29	63	37	51	8	Southampton	86	76	35	20
5	Nansemond- Isle of Wight					11	Montgomery	2	10	0	1
		40	64	20	9	12	Accomack	32	16	3	8
						13	Culpeper	76	44	27	15

WASHINGTON

1	Spokane	24	36	15	27	10	Yakima	31	16	65	97
2	Douglas	26	23	19	51	12	Yakima	33	23	156	84
3	Spokane	21	16	22	15	13	Ferry	24	26	9	0
4	Whitman	29	21	12	24	14	Stevens	16	28	1	1
5	King	1	0	0	0	17	Douglas	81	63	76	119
6	Okanogan	64	49	180	90	18	Chelan	42	26	55	44
7	Skagit	0	0	5	9	19	Okanogan	61	47	78	74
8	Yakima	110	120	247	209	20	Okanogan	34	34	30	37
9	Yakima	47	37	216	187						

WEST VIRGINIA

1	Hampshire	13	13	5	2	3	Mason	9	10	4	5
2	Mason	--	3	--	25						

WISCONSIN

1	Dane-					4	Green	30	26	15	6
	Columbia	49	38	25	17	5	Jackson	73	49	26	10
2	Columbia	26	46	11	11	6	Dunn	99	70	12	7
3	Iowa	43	43	2	1	7	Dunn	57	64	15	12

Continued--

WISCONSIN - Continued --

Rt. No.	County	Heard		Seen		Rt. No.	County	Heard		Seen	
		1960	1961	1960	1961			1960	1961	1960	1961
8	Adams	55	38	24	15	18	Winnebago	13	11	5	20
9	Sauk	42	27	4	4	19	Kenosha	27	25	9	12
10	Weushara	28	54	19	10	20	Grant	9	18	19	4
12	Dane	24	32	5	9	21	Vernon	21	23	19	12
13	Adams	16	43	3	3	22	Dodge	20	22	2	4
17	Winnebago	7	4	1	6						

WYOMING

1	Johnson	11	16	8	11	13	Niobrara	43	38	23	14
2	Hot Springs	3	5	8	4	14	Bighorn	--	27	--	2
3	Natrona	47	40	33	9	15	Lincoln	--	2	--	1
4	Carbon	14	17	4	14	16	Campbell	74	94	54	202
5	Fremont	--	24	--	3	19	Albany	0	0	0	0
6	Park	--	15	--	19	20	Park	17	16	47	100
8	Washakie	30	32	49	51	21	Laramie	24	47	15	19
9	Crook	--	29	--	97	22	Johnson	--	7	--	5
10	Carbon	0	2	0	5	23	Park	4	5	0	2
12	Uinta	4	6	0	0	25	Sublette	--	8	--	7